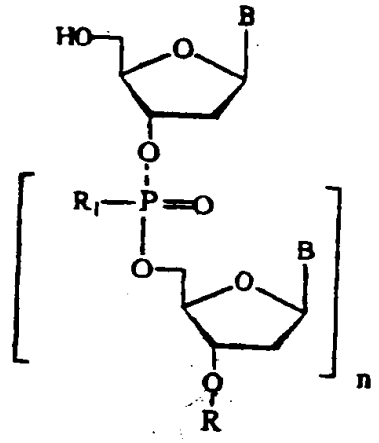
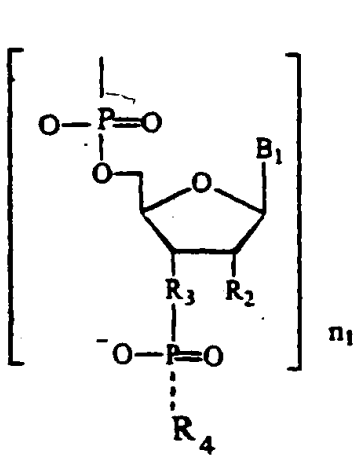
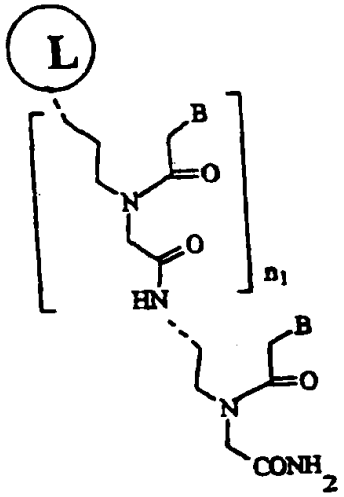
Claims

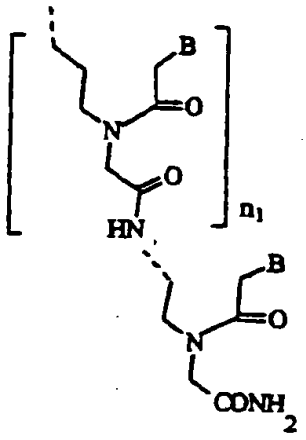
1. Chimeric oligonucleotides of a general formula I for binding telomerase, comprising,



wherein R is selected from the group consisting of







wherein

n is at least 10 and not more than 20,

R_1 is selected from the group consisting of S^-, CH_3, and O^-,

B is selected from the group consisting of thymine, cytosine, adenine, and guanine,

n_1 is at least 3 and not more than 17,

B_1 is selected from the group consisting of thymine, cytosine, adenine, guanine, 5-propyluracil, and 5-propylcytosine,

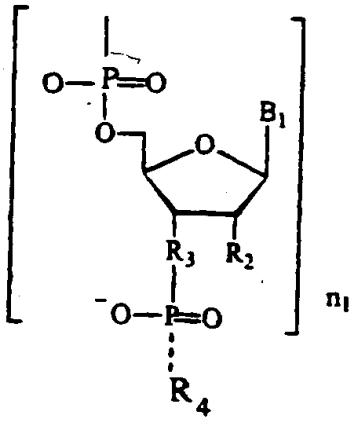
R_2 is selected from the group consisting of H, F, NH_2, O-alkyl ($C_1 - C_5$), O-allyl, and O-methoxyethoxy,

R_3 is selected from the group consisting of NH and O, wherein if R_3 is NH, R_2 must not be selected from the group consisting of NH_2, O-alkyl ($C_1 - C_5$), O-allyl, and O-methoxyethoxy,

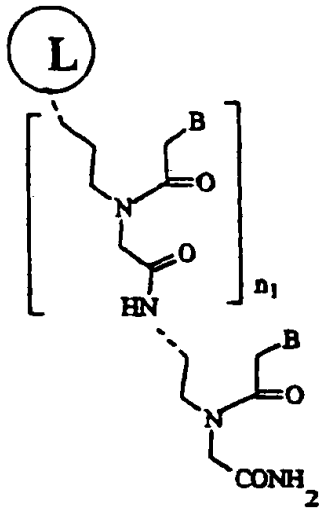
R_4 is selected from the group consisting of 2',3'-dideoxy-3'-fluoroguanosine, 2',3'-dideoxy-3'-azidoguanosine, 2',3'-dideoxy-3'-aminoguanosine, 2',3'-epoxyguanosine, acyclovir, gancyclovir, 2'-deoxyadenosine, 2'-deoxyguanosine, 2'-deoxycytidine, and 2'-deoxythymidine,

L is selected from the group consisting of $-(PO_2)-OCH_2-COH-CH_2-NH-$ and $-(PO_2)-OCH_2-CH(CH_2COOH)-(CH_2)_4NH-$.

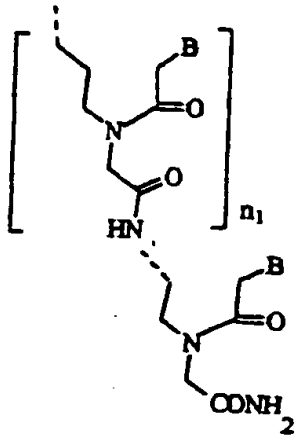
2. The oligonucleotides according to claim 1, wherein R is



3. The oligonucleotides according to claim 1, wherein R is



4. The oligonucleotides according to claim 1, wherein R is



5. The oligonucleotides according to claim 1, wherein R1 to R4 and B and B1 vary from a nucleotide unit to another nucleotide unit.

6. The oligonucleotides according to claim 1, wherein the oligonucleotides having a nucleotide sequence is selected from the group consisting of

5'-TCAGATTAGTACTCGTCAGAGTTAGGGTTAG-3' (SEQ ID No. 1)

5'-TCAGATTAGGACTGCTCAGAGTTAG-3' (SEQ ID No. 2)

5'-TCAGATTAGTACTCGTCAGACAGTTAGGGTTAG-3' (SEQ ID No. 3)

5'-TCAGATTAGTACTCGTCAGAGTTAGAGTTAG-3' (SEQ ID No. 4)

5'-TCAGATTAGGACTGCTCAGAGUUAG-3' (SEQ ID No. 5)

5'-TCAGATTAGGACTGCTCAGAUAGUUAG3' (SEQ ID No. 6)

5'-TCAGATTAGGACTGCTCAGAGUUAGGGTTAGACAA-3' (SEQ ID No. 7)

5'-TCAGATTAGGACTGCGTTAGGGTTAGACAA-3' (SEQ ID No. 8)

5'-TCAGATTAGTACTCGTCAGA-O(PO_2)OCH_2CH(CH_2COOH-(CH_2))$_4$-NH-TAGGGTTAGACAA-3' (SEQ ID No. 9)

5'-TCAGATTAGTACTCGTCAGAGTTAGGGTTA-azidodeoxyguanosine-3' (SEQ ID No. 10)

5'-AATCCTCCCCCAGTTCACCC- GTTAGGGT-3' (SEQ ID No. 11)

5'-TCTCCCAGCGTGCGCCAT- GUUAGGGUUAG-3' (SEQ ID No. 12)

5'-ATGTATGCTGTGGCT- n(L) -GTTAGG-3' (SEQ ID No. 13)

5'- GTACTGCTCAGA-GTTAGGGTTAG-3' (SEQ ID No. 14)

5'- GTACTGCTCAGA-GTTAGGGT-3' (SEQ ID No. 15)

5'- GTACTGCTCAGA-GUUAGGGUUAG-3' (SEQ ID No. 16)

5'- GTACTGCTCAGA-n(L)-GTTAGG-3' (SEQ ID No. 17)

5'-GGCCAGCAGCTG- GUUAGGGUUAG-3' (SEQ ID No. 18)

5'- TGCTCAGA-GUUAGGGUUAG-3' (SEQ ID No. 19)

5'- TGCTCAGA-n(L)-GTTAGG-3' (SEQ ID No. 20)

5'- TCAGACATATACTGCTCAGA-n(L)-TAGGGTTAGACAA-3' (SEQ ID No. 21)

5'- ACT GCT CAG A-GTT AG-3' (SEQ ID No. 22)

5'- ACT GCT CAG A-GUU AGG GUU AG-3' (SEQ ID No. 23)

5'- ATA CTG CTC AGA-linker-GTT AGG GTT AG-3' (SEQ ID No. 24)

5'- TTA GTA CTG CTC AGA-GTT AGG GTT AG-3' (SEQ ID No. 25)

5'- TCA GAT TAG TAC TGC TCA GA-GTT AG-3' (SEQ ID No. 26)

5'- TCA GAT TAG TAC TGC TCA GA-GTT AG-3' (SEQ ID No. 27)

5'-ACT GCT CAG A-GTT AGGGTTAG-3' (SEQ ID No. 28)

5'-TTAGGG-3' (SEQ ID No. 29).

7. A method of inhibiting telomerase activity, comprising the administering of chimeric oligonucleotides to a human tumor cell line.

8. A method of in vivo treatment of tumours, comprising the administering of chimeric oligonucleotides in a flank region.

add A1)